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**EPAct Test Programs in ASD**  
**12<sup>th</sup> Bi-Weekly Report**  
July 17, 2008  
DRAFT

**1. Light Duty Gas Exhaust Fuels**

Contractor: SwRI, EP-C-07-028, WA 0-1  
WAM: Connie Hart  
Alt. WAM: Rafal Sobotowski  
Other team members: Carl Scarbro, Mike Christianson, Tony Fernandez, Carl Fulper, Aron Butler  
Budget: \$4.3M, plus \$3M in collaboration with NREL

Objective: Phases 1 and 2 are in support RFS 2 NPRM and Phase 3 is to establish the effects of RVP, T50, T90, aromatic and EtOH content on exhaust emissions from Tier 2 vehicles

**Time Line**

- Testing began by second week of April
- Phase 1 and half of Phase 2 finished by the end of June: Fuels 17 and 18 of Phase 1 were complete by end of June. Fuel 19 by end of July due to fuel delivery delays.
- Phase 3 will be finished May 2009: Phase 3 to be complete by October 2009 between testing/fuel delays to date and additional CRC fuels added into our random matrix.

**Program Status:**

- Fuel status for Phase 1 (distillation curves shown below):
  - Fuel 17 has been delivered.
  - Fuel 18 has been delivered.
  - Fuel 19 adjustment overshoot on RVP. Fuel was rebled and within tolerances now. Fuel has been drummed and shipped for delivery to SwRI by 7/17.
- Fuel 17 testing is complete, all data is in.
- Fuel 18 testing is complete. Focus tests were re-run.
- A number of tests were re-run on both fuels for quality issues.
- Rafal is learning the Refinery Tool software.
- Testing Issues:
  - Flowmeter issues:
    - Distortions occurring when EFM is in the CVS system even though it calibrates well on flow stand properly. Our staff working closely with SwRI. Resolution is beyond scope of this WA.
      - We received Work Plan from SwRI on Mon, 7/14.
  - Temp and humidity large fluctuations. SwRI **still** working on the problem.
    - SwRI is moving towards tightening the tolerance.
    - Weather station probe has been placed within proximity of vehicle to more accurately apply any correction factors.
- Data/Analysis:

- Dataset from 7/7 was analyzed by George Hoffman.
- Briefing for Chet on 7/18.

## **2. Oil Study**

Contractor: NVFEL  
 Project lead: Mike Christianson, Rafal Sobotowski  
 Budget:

Objectives: Results to impact Phase 3 of EPAct study at SwRI (July)

Objective 1: Define duration of engine oil conditioning needed to stabilize the effect of oil volatility on PM emissions

Objective 2: Define the impact of lubricant interaction with fuel ethanol on PM emissions

Time Line

- Estimated duration of pilot: 15 weeks (May 11)

Program Status:

- Starting a 3<sup>rd</sup> phase: Engine Oil is now aged to full useful life (5000 miles) and vehicles are in the LOD testing queue for this week and next.
- This additional testing will allow us to align our test data with CRC's oil study and close out our program.
- Awaiting Lubrizol oil analysis results in next few weeks.

## **3. PM Speciation**

Contractor: NVFEL  
 Project lead: Mike Christianson, Marion Hoyer  
 Other team members: Carl Scarbro, Rafal Sobotowski, Joe McDonald  
 Budget: \$345K (\$55K on inventory and data issues from other EPAct programs)

Objective: To determine fuel effects on PM mass, size and composition, and obtain speciated semi-volatile VOC, metals and ions, and gaseous VOC (MSATs), alcohols and carbonyls.

Time Line: Late 2008

Program Status:

- Working with LOD and ORD/NRML to define round robin goals and requirements.
  - July trip to ORD for dyno facility audit is likely next step.
- AVL will test current toxic sampler before HD dioxin testing begins to determine feasibility of our proposed modifications. Upgraded instrument delivery still targeted for the fall of this year.

## **4. Nonroad Exhaust Program**

Contractor: Carnot Intertek

WAM: Carl Scarbro  
Alt. WAM: Cheryl Caffrey  
Budget: \$830K

#### Project Overview:

Objective: Testing 6 paired engines including 2 Class 1, 2 Class 2, 2 Class 4, (one Class 2 engine has catalyst) on three fuels; national average non-oxy gasoline (Fuel A), an octane matched E10 (Fuel B), and a certification fuel (E0).

#### Timeline

- The original program was to be completed last year
- Should begin by April 1st and finish in October of this year: delays in schedule due to fuel delivery status.

#### Program Status

- Addition of third fuel: Certification fuel.
- Class 1 engines completed testing.
- Class 2 Kowasaki engine completed testing.
- Larger Class 2, Briggs and Stratton will begin testing.
- Cheryl Caffrey and Brian Olson working on data review.

#### 5. Evap Testing

Contractor: SwRI, EP-C-07-028, WA 0-4  
WAM: Connie Hart  
Alt. WAM: Dave Brzezinski  
Other team members: Carl Scarbro, Tony Fernandez  
Budget: \$600K

Objective: Additional, newer technology, high sales volume vehicles to the CRC E-77-2 permeation test program.

Time Line: Testing from June 2008 thru June 2009: Testing will not start until end of summer.

#### Program Status:

- SwRI has asked for extension on Work Plan due date of two weeks. Expect to receive on 7/25.
- SwRI is proposing to subcontract this project to Harold Haskew who will have the testing done in Phoenix.

#### 6. Determine Percent of High Evaporative Vehicles in Fleet

Contractor: ERG, EP-C-06-080, WA 1-2  
WAM: Connie Hart  
Alt. WAM: Dave Brzezinski

Other team members: Carl Scarbro, Carl Fulper, Tony Fernandez, Jim Warila  
Budget: \$1M

Objective: Find the percentage of high emitting evaporative emission vehicles in the average fleet of on-road motor vehicle passenger cars and light trucks.

#### Time Line

- ICR clock started with Federal Register notice 2/14/08
- SOW package went to Cincinnati 2/22/08
- Approval of Work Plan by March 24: Work Plan was approved June 19 (after CRADA signed).
- Contractor to supply supporting documents for ICR submission March 31: delivered May 8<sup>th</sup>.
- Another 30 day comment period for ICR, roughly month of May. Clock started on 30 day period May 27.
- Goal is to have ICR in place by mid-June for recruitment and pilot field work to begin. Paul Machiele has been calling OMB to give us priority.
- Finalize test procedure for larger program by August 22 so recruitment can begin for field work in Sept and October
- Compile data and draft report by early December of 2008

#### Program Status:

- ERG is in field as of July 14 for two weeks of preliminary work, before working with public which requires ICR approval.
- We are addressing comments in ICR supporting documents, anticipating a partial ICR approval for the pilot study which will need approval by 7/23 for contractor to stay in field.
- OMB has another set of issues regarding the larger program which we will address after pilot portion of ICR is approved.
- Carl Fulper will go to Colorado next week to work with CDHPE and ERG on proving out portable SHED. We will be using our SEMTECH-G for HC measurements and Carl will train technicians how to calibrate/use properly.